REMARKS

Claims 1-11, 13-23, 26-32, 35-37, and 43-47 are pending in the subject application after entry of the amendments. Claims 1-11, 13-23, 26-32, and 35-37 have been amended to address various informalities as shown on pages 2-9 of the Reply. In addition, claims 39-42 have been cancelled herein, without prejudice and claims 43-47 have been newly added. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-11, 13-23, 26-32, 35-37, and 39-42 Under 35 U.S.C. §103(a)

Claims 1-11, 13-23, 26-32, 35-37, and 39-42 stand rejected under 35 U.S.C. §103(a) over Beshai et al. (U.S. 6,034,960) in view of Nakano et al. (U.S. 5,446,739) and Ketseoglou et al. (U.S. 5,732,076). While the subject Office Action mentions Ketseoglou et al. as a basis for this rejection, it is noted that the subject Office Action does not discuss Ketseoglou et al. or its application to the pending claims. Withdrawal of this rejection is requested for at least the following reason. The cited art fails to teach or suggest all aspects of the subject claims.

The subject patent application relates to spreading data communications over time to reduce the impact of relatively short duration noise. In particular, the subject application provides for reducing interference between terminals disposed in nearby satellite beams, or cells, of a communication system, during time division multiplex (TDM) transmissions, including scattering time slot data. To this end, independent claim 1 recites, "*[a] method for transmitting data in a communication system wherein the data is transmitted in a communication frame, the communication frame comprising a set of time slots, the method comprising:* ***receiving one or more scattering instructions from a gateway; dividing data corresponding to a time slot in the set of time slots into a plurality of intervals in accordance with the one or more scattering instructions, wherein each interval in the plurality of intervals comprises a duration shorter than a duration of the time slot; scattering at least a portion of the plurality of intervals to one or more disparate time slots in the set of time slots based upon the one or more scattering instructions, wherein the portion of the plurality of intervals are scattered non-contiguously;*** *and transmitting the data in accordance with locations of the plurality of intervals within the communication frame.*" The cited art fails to teach or suggest such features.

Beshai et al. provides an Asynchronous Transfer Mode (ATM) network switch device that schedules transmission of ATM cells based on a scheduler frame concept employed in

Synchronous Transfer Mode (STM). A network switch can be device on a local area network or other such network that multiplexes a plurality of network connections associated with devices to an output link coupled to another network (e.g., the Internet) or a higher level of a network topology. To switch and multiplex a plurality of input connections onto the output line, scheduler frames of fixed length can be employed. A scheduler frame is a time-space map, wherein each entry specifies a connection that has units of data queued for transmission of the output link. A position of each entry in the scheduler frame relates to a window of time during which a unit of data associated with the connection will be transmitted. (*See* Background).

In ATM, fixed-sized data packets called cells are utilized. Each cell is associated with a connection referred to as a virtual circuit or virtual path. Thus, an ATM switch, such as the switch described Beshai et al., schedules cells associated with a plurality of streams (e.g., virtual circuits) for transmission over an outgoing network link. (*See* col. 5, ll. 9-17). A link controller in the ATM switch can periodically scan a time-space map comprised of time-slots whose position in the map correspond to a time at which data can be transmitted over the outgoing network link. The time slots are periodically updated with stream-number entries (e.g., virtual circuit identifiers) respectively corresponding to streams. In an example, a stream-number entry written into the Nth time slot of the time-space map corresponds to the stream associated with the Mth cell transmitted as a result of the link controller scanning the map, wherein N and M are related by a one-to-one mapping. (*See* col. 3, ll. 29-42). A scheduler of the ATM switch maintains the time-space map associated with the switch. The scheduler, for each time slot in the time-space map, assigns a stream number or virtual circuit identifier to the time slot. A cell (e.g., data packet) associated with the stream number is transmitted during the time slot. (*See* col. 5, ll. 9-58). The link controller reads or scans the time-space map to serve the streams. For instance, the link controller can sequentially scan the time-space map from top to bottom (e.g., from a first time slot to a last time slot). (*See* col. 5, ll. 40-43). To reduce delay-jitter, the link controller can scan the time-space map in a reverse-binary order. In a reverse binary order, time-slots indexes can be represented in binary and reversed such that least significant bits become most significant bits. (*See* col. 7, ll. 28-41).

However, Beshai et al. fails to teach or suggest receiving one or more scattering instructions from a gateway. Beshai et al. relates to a network switch that includes a scheduler and a link controller. The scheduler and link controller coordinate to multiplex a plurality of streams that provide data packets to the switch for transmission over an outgoing link. However,

Beshai et al. fails to teach or suggest scattering instructions being received.

Moreover, Beshai et al. fails to teach or suggest dividing data corresponding to a time slot in the set of time slots into a plurality of intervals in accordance with the one or more scattering instructions, wherein each interval in the plurality of intervals comprises a duration shorter than a duration of the time slot. Beshai et al. discloses a time-space map that comprises a plurality of time slots. However, each time slot of the plurality of time slots is configured to accommodate transmission of a single cell. In ATM networks, a cell is a data packet having a fixed size. Accordingly, Beshai et al. fails to disclose dividing time slot data and, additionally, cannot divide time slot data as such data is an ATM cell which is fixed in size.

Further still yet, Beshai et al. fails to teach or suggest scattering at least a portion of the plurality of intervals to one or more disparate time slots in the set of time slots based upon the one or more scattering instructions. In Beshai et al., a link controller scans time slots of a time-space map in a non-sequential manner. However, Beshai et al. nowhere discloses scattering data from a time slot to disparate time slots. For instance, Beshai et al. fails to disclose moving data from a time slot to a disparate time slot. In view of the above, it is readily apparent that Beshai et al. fails to teach or suggest all aspects of independent claim 1.

In the subject Office Action, Nakano et al. is relied upon to cure the deficiencies of Beshai et al. with respect to independent claim 1. Nakano et al. provides a radio communication system in which multiple carrier frequencies are employed in TDMA transmissions. A mobile station can utilize more than one carrier frequency to receive or transmit data. To minimize complexity of the mobile stations, time slots associated with different carrier frequencies, and assigned to a single station, are separated by at least one intervening time slot assigned to a disparate mobile station. Such arrangements enable mobile stations to include a single receiver. However, Nakano et al., similar to Beshai et al., fails to teach or suggest receiving scattering instructions, dividing time slot data, and/or scattering time slot data to disparate time slots. Thus, Nakano et al. fails to teach or suggest all aspects of independent claim 1. Accordingly, the cited art fails to teach or suggest all aspects of independent claim 1. Claims 2-7 depend from independent claim 1 and are allowable for at least the reasons above.

Independent claim 8 recites, in part, "*...a receiver configured to receive one or more scattering instructions from a gateway device; a processor configured to: divide data associated with a time slot of a communication frame into a plurality of intervals in accordance with the one or more scattering instructions, wherein each interval comprises a shorter duration than the*

time slot; distribute the plurality of intervals among one or more disparate time slots in the communication frame based at least in part on the one or more scattering instructions, wherein the plurality of intervals are distributed non-contiguously; and a transmitter configured to transmit the plurality of intervals in accordance with locations of the plurality of intervals within the communication frames." As discussed supra, Beshai et al. fails to teach or suggest receiving scattering instructions, dividing time slot data, and distributing the divided data. Rather, Beshai et al. relates to an ATM switch that reduces delay-jitter by serving scheduled streams in a non-sequential manner. Nakano et al. fails to teach or suggest such aspects. Accordingly, Beshai et al. and Nakano et al. fail to teach or suggest every feature of independent claim 8 (and claims 9-11, 13, and 14 which depend therefrom).

Independent claim 15 recites, in part, "*...receiving a request from a terminal device for access to a communications channel; **generating a schedule of transmission for the terminal device, wherein the schedule of transmission specifies a division of data into a plurality of time intervals**, each time interval shorter in duration than a time slot of a communication frame, the schedule of transmission further specifies **a location of each time interval from the plurality of time intervals within the communication frame**, wherein the plurality of time intervals are located within the communication frame in a non-contiguous manner; **generating one or more scattering instructions in accordance with the schedule of transmission; and transmitting the one or more scattering instructions to the terminal device.***" Beshai et al. and Nakano et al. fail to teach or suggest such aspects. As described above, Beshai et al. provides a switch that utilizes reverse-binary mapping to scan a time-space map in a non-sequential manner. However, Beshai et al. fails to teach or suggest receiving a request for access. In addition, Beshai et al. fails to teach or suggest generating a schedule of transmission that specifies a division of data and a location of time intervals in a communication frame. Rather, Beshai et al. discloses generating a time-space map that assigns a time slot to a data packet of a stream. Further, Beshai et al. nowhere discloses generating and transmitting scattering instructions based upon the schedule of transmission. Nakano et al. fails to cure the deficiencies of Beshai et al. Accordingly, the cited art fails to teach or suggest every feature of independent claim 15 (and claims 16-23 which depend therefrom).

Independent claim 26 recites, in part, "*...means for generating one or more scattering instructions in accordance with the schedule of transmission; and means for transmitting the one or more scattering instructions to the terminal device.*" The cited art fails to teach or suggest

such aspects. Beshai et al. discloses generating a time-space map; however, Beshai et al. fails to disclose generating scattering instructions based upon the schedule and transmitting scattering instructions. Thus, Beshai et al. fails to teach or suggest all aspects of independent claim 26 (and claims 27-32 which depend therefrom). Moreover, Nakano et al. fails to make up for the deficiencies of Beshai et al. with respect of claims 26-32.

Independent claim 35 recites, in part, "*...means for receiving one or more scattering instructions from a gateway; means for partitioning data corresponding to a time slot in the set of time slots into a plurality of intervals in accordance with the one or more scattering instructions, wherein each interval in the plurality of intervals comprises a duration shorter than a duration of the time slot; means for scattering at least a portion of the plurality of intervals to one or more disparate time slots in the set of time slots based upon the one or more scattering instructions, wherein the portion of the plurality of intervals are scattered non-contiguously...*" As discussed supra, Beshai et al. fails to teach or suggest such aspects. Moreover, Nakano et al. also fails to teach or suggest such features. Accordingly, the cited art fails to teach or suggest all features of independent claim 35 (and claims 36 and 37 which depend therefrom).

In view of at least the foregoing, it is readily apparent that the cited art fails to teach or suggest all aspects of independent claims 1, 8, 15, 26, and 35 (and respective dependent claims). Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [QUALP853USA].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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